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Report Impact Analysis for the Proposed Heavy-Duty Diesel Particulate Regulation

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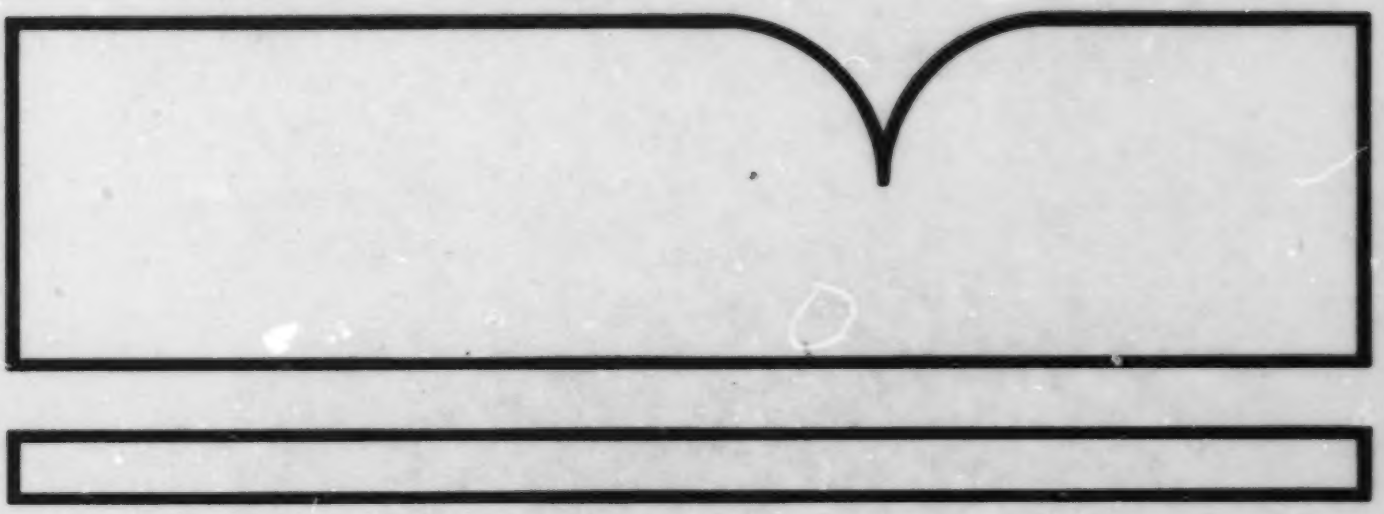

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EPA is preparing to propose a particulate emission standard for 1985 and later model year heavy-duty diesel vehicles. Under Executive Order 12044, Improving Government Regulations, government agencies must report new reporting burdens or recordkeeping requirements before new significant regulations are adopted. EPA requires a "report impact analysis" to comply with executive Order 12044. This analysis has been performed in fulfillment of this requirement. This report will examine the information already required and determine the additional information that will have to be submitted. Also to be addressed are the reasons for requesting this additional information.

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Technical Report

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by

Daniel Heiser

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Technical Reports do not necessarily represent final EPA decisions or positions. They are intended to present technical analysis of issues using data which are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments which may form the basis for a final EPA decision, position or regulatory action.

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Report Impact Analysis for the Proposed Heavy-Duty Diesel Particulate Regulation

EPA is preparing to propose a particulate emission standard for 1985 and later model year heavy-duty diesel vehicles. Under Executive Order 12044, Improving Government Regulations, government agencies must report new reporting burdens or recordkeeping requirements before new significant regulations are adopted.1/ EPA requires a "report impact analysis" to comply with Executive Order 12044.2/ This analysis has been performed in fulfillment of this requirement. This report will examine the information already required and determine the additional information that will have to be submitted. Also to be addressed are the reasons for requesting this additional information.

Most of the paperwork for heavy-duty diesel engine manufacturers at present is involved with certification and Selective Enforcement Auditing (SEA). The promulgation of this particulate regulation will add no new requirements to the heavy-duty diesel engine manufacturers in these two areas. However, it will impact the existing requirements somewhat. The certification requirements will be discussed first as these are the primary cause of paperwork for the heavy-duty diesel engine manufacturers.

Certification is the process in which EPA determines whether a manufacturer's engine conforms to applicable regulations and can be made available for sale. The engine manufacturers must demonstrate that its engines are designed and will be built such that they are capable of complying with the emission standards over their full useful life. The certification process begins by a manufacturer submitting to EPA an application for certification. A recommended formal application of certification is sent to all manufacturers.3/ This formal application can be broken down into two parts. Part I of this application is a declaration of the manufacturers intention to certify his diesel engine, in conformance with 40 CFR Part 86. Part II is a request for issuance of certificate of conformity. Part I of this application will be discussed and analyzed first.

The Part I can be conveniently subdivided into two parts, Subparts IA and IB. Subpart IA contains general information relating to the applicant's facilities and product line. Subpart IB contains specific information relating to the product line for a particular model year. Only Subpart IA would be affected by this particulate regulation, primarily because of the new test equipment required, the new test procedures being implemented, and the new emission controls being used. None of these three additions should greatly impact the paperwork involved and only five sections out of the twelve total sections require some additional paperwork. These sections are: Section V, Facility and Test Procedure Description, Section VI, General Technical Information, Section IX, Detailed Specifications and to a lesser extent Section IV, Test Fuels, and Section VII, Test Engine Maintenance. Each section will be analyzed separately to determine the effect of a new particulate regulation.

In Section V, Facility and Test Procedure Description, manufacturers are presently required to submit narrative explanations with schematic drawings and photographs, if applicable, on service accumulation for gasoline-fueled engines, test equipment and procedure, strip charts, and horsepower correction for diesel engines. Only descriptions of the test equipment and test procedure would be changed for a new particulate regulation. Currently, manufacturers must decribe all of their test equipment and the corresponding test procedure used for measuring gaseous emissions. With this particulate regulation manufacturers would add descriptions of a dilution tunnel, heat exchangers, and other related particulate sampling instruments. Manufacturers would also need to discuss the additions and modifications to the current test procedure. In all, the additional test equipment and procedures represent a small fraction of the existing equipment and procedures. For example, the cost of an existing diesel test cell is about $650,000 (1979 dollars),4/ while the cost of the modifications for particulate testing is about $34,000 per cell (1980 dollars) with an additional $33,000 per test facility (1980 dollars). Also, the test procedures added for particulate testing have increased the length of the overall test procedure by about 10 percent. Thus, while there is some additional paperwork involved in Section V with a new particulate regulation it should be no more than 10 percent of paper work already required.

In Section VI, General Information, manufacturers must provide general technical information regarding construction and operation of various engine parts. Emission control systems are among these engine parts. EPA requires that discussions with sketches and cross-sectional views should be provided to adequately present the necessary information. It is expected that manufacturers would incorporate a trap-oxidizer system to meet the particulate standard. This would necessitate discussions, sketches, and cross-sectional views for some or all of its components. However, this additional requirement should not be more than about 10 percent of the information already required for existing engine parts such as governors, turbochargers, aftercoolers, and smoke and gaseous emission controls.

In Section IX, Detailed Specifications, the information that is submitted determines how the applicant's product line is subdivided into separate engine families and provides the data which are used by EPA to select the engines. In Section VI, General Information, a manufacturer describes and discusses the operation of emission controls that are common to all of his engine models. However, in Section IX, the manufacturer lists the emission controls used on each model as well as specifying the characteristics of that emission control unit, such as dimensions, weight and volume, material composition, and location in the engine. A manufacturer usually provides a configuration of each component as well as a scaled schematic of the whole emission control system. To explain the general operation of a specific component, the manufacturers may reference the General Information section. Once

again, for a particulate regulation most of the additional paperwork in this section would involve the trap-oxidizer system, and should not be more than about 10 percent of descriptions already required.

Section VII, Test Engine Maintenance, may also require some additional work. A manufacturer must submit a statement of the recommended maintenance and procedures that are necessary to assume that the engines will conform to the regulations when in use. With a new particulate regulation additional maintenance instruction may have to be submitted for the trap-oxidizer system. A manufacturer may also have additional paperwork associated with Section IV, Test Fuels, if a new test fuel is used. Both sections are expected to have additional paperwork that would probably add up to less than 5 percent of what is already required.

In summary, the most additional paperwork of Part I is contained in Subpart IA and would probably be involved with Section VI, General Information, Section IX, Detailed Specifications, and Section V, Facility and Test Procedure Description. The additional work required within these sections should be about 10 percent more than present requirements. Some additional work is also necessary for Sections IV and VII, Test Fuels and Test Engine Maintenance, and this is only about 5 percent. The extra paperwork for Part I, considering that at most 5 sections out of 12 total requires some additional work in Subpart IA and that no additional work is required in Subpart IB, would be roughly 3-5 percent of current requirements. This should not be a burden to heavy-duty diesel engine manufacturers.

Part II of the application for certification will also require some additional paperwork, but to a much lesser extent than Part I. Part II is the request for issuance of certificate. For a new particulate regulation Part II most likely requires an additional line or column wherever similar gaseous emission results are currently listed. For example, a deterioration factor summary and an emission data summary are required where manufacturers simply list particulate results and perform calculations in the same manner as for gaseous emissions. Manufacturers must also list the particulate control hardware used in their engine to be certified, but this is small and about one extra page of paperwork when compared to other engine parts and control hardware that must already be listed. Most additional work in Part II may involve the writing of maintenance instructions which is provided to the ultimate user, but again this should only amount to one or two additional instructions compared to the list of instructions currently submitted. The additional paperwork in Part II should be very small and on the order of about 1-2 percent of what must already be submitted. The total certification paperwork burden would then be less than 2-5 percent of present paperwork requirements when Parts I and II are combined. Manufacturers should be able to meet these extra requirements with little problem.

Additional paperwork requirements for Selective Enforcement Auditing (SEA) should also be small. The addition of a particulate standard is not expected to increase the number of SEA tests performed on heavy-duty diesels. These engines would have to be audited for compliance with gaseous emissions in any event. Thus, no additional paperwork could occur because of an increase in the number of engines tested. As with certification, additional SEA paperwork can be attributed to SEA requirements already established. Preparation of SEA requires a description of test equipment, engine components including emission control devices, engine family distinction, and test data results.5/ It is estimated that SEA paperwork additions over present requirements is roughly the same as certification paperwork additions over present requirements, or less than 5 percent. Again, this should not greatly impact diesel engine manufacturers.

While a heavy-duty diesel particulate standard should require some additional paperwork for diesel engine manufacturers, it is not expected that this paperwork should be more than 5 percent of what is already required for preparation of certification and SEA. Additional paperwork is necessary primarily for description of test equipment, test procedure, emission control, and test engine maintenance. A small amount of paperwork is also necessary for particulate emission data and results. By the time a 1985 particulate standard becomes effective, most of the paperwork for preparation of certification and SEA will have already been completed. Thus, the proposed heavy-duty diesel particulate standard for 1985 and later engine models should not be a burden to diesel engine manufacturers.

References

1/ "Improving Government Regulations" (Executive Order 12044), FR Vol. 43, No. 58, March 24, 1978, pp. 12661-12665.

2/ "Improving Environmental Regulations," FR Vol. 44, No. 104, May 29, 1979, pp. 30988-30998.

3/ "The Preparation and Submission of Applications for Certificate of Conformity for New Gasoline-Fueled and Diesel Engines for Use in Heavy-Duty Vehicles (Pursuant to 40 CFR Part 86), 1979 Model Year," Certification Division, OMSAPC, OANR, EPA.

4/ "Selective Enforcement Auditing of New Gasoline-Fueled and Diesel Heavy-Duty Engines," (Subpart K), FR Vol. 45, No. 14, January 21, 1980, pp. 4170-4181.

5/ "Regulatory Analysis and Environmental Impact of Final Emission Regulations for 1984 and Later Model Year Heavy-Duty Vehicles," OMSAPC, EPA, December 1979.